

REMARKS

Thorough examination and careful review of the application by the Examiner is noted and appreciated.

Claims 1-20 are pending in the application. Claims 2 and 19 have been cancelled without prejudice and withdrawn from further consideration by the Examiner.

Claims 1, 3-18 and 20 stand rejected.

Claim Rejections Under 35 USC §103

Claims 1 and 13 are rejected under 35 USC §103(a) as being unpatentable over Mullee '882. It is contended that Mullee discloses a method "to clean ... wafers", and furthermore, Mullee discloses "an edge deposit".

The rejection of claims 1 and 13 under 35 USC §103(a) based on Mullee '882 is respectfully traversed.

Mullee discloses a method of purification of organic solvent fluids by passing the fluids through an ion-exchange media and thereby effecting the removal of undesirable impurities.

The only reference that Mullee made regarding a semiconductor wafer is in paragraph 0004, page 1:

"Organic solvent fluids of various compositions are used to clean, develop, rinse, and dry wafers; prime surfaces; remove edge deposits; strip photoresist; and deposit dielectric materials".

Such statement is nothing more than a general comment on the many possible uses of organic solvents. As such, Mullee does not teach or disclose the present invention method and apparatus for collecting contaminating samples from a wafer edge and then analyzing the contaminants. However, in the interest of expediting the examination process of the present application, the Applicant has amended independent claims 1 and 13 to further narrowly define the invention contained therein. Independent claim 1 has been amended to further include the limitations contained in dependent claim 2, while independent claim 13 has been amended to further include the limitations contained in dependent claim 19.

The rejection of claims 1 and 13 under 35 USC §103(a) based on Mullee is respectfully traversed. A reconsideration for allowance of these claims is respectfully requested of the Examiner.

Claims 1 and 13 are further rejected under 35 USC §103(a) as being unpatentable over Gilton et al '883 in view of Mullee '882. It is contended that Gilton et al discloses exposing the contaminated portion of a wafer to a volume of solvent and then analyzing the volume of solvent. It is further contended that while Gilton et al does not expressly recited the localized or isolated section analyzed being specifically the edge portion of the wafer, such is well-known in the art that the edge portion of the wafer is the section most frequently being contaminated.

The rejection of claims 1 and 13 under 35 USC §103(a) based on Gilton et al and Mullee is respectfully traversed.

Independent claims 1 and 13, in their newly amended form, further recites a rotatable shaft for mounting the wafer and means for rotating the wafer with the edge portion contacting the volume of solvent. The Applicant respectfully submits that such

limitations are not taught or disclosed by Gilton et al and Mullee, either singularly or in combination thereof. A reconsideration for allowance of these claims is respectfully requested of the Examiner.

Claims 3-5, 8 and 15-16 are rejected under 35 USC §103(a) as being unpatentable over Mullee or Gilton et al.

Claims 3-5 and 8 depend on the newly amended independent claim 1, while claims 15 and 16 depend on the newly amended independent claim 13. The Applicant has clearly shown that the newly amended independent claims 1 and 13 are not taught or disclosed by Mullee or Gilton et al, either singularly or in combination thereof.

The rejection of claims 3-5, 8 and 15-16 under 35 USC §103(a) based on Mullee and Gilton et al is respectfully traversed. A reconsideration for allowance of these claims is respectfully requested of the Examiner.

Claims 2, 10-12 and 19-20 are rejected under 35 USC §103(a) as being unpatentable over Mullee, Gilton et al and further in view of Woo et al '166. It is contended that while Mullee and Gilton et al combined does not teach the provision of a rotatable shaft, such is taught by Woo et al.

The rejection of claims 2, 10-12 and 19-20 under 35 USC §103(a) based on Mullee, Gilton et al and Woo et al is respectfully traversed.

Woo et al discloses a rotating apparatus for holding a wafer under vacuum pressure, while the vacuum chuck horizontally rotates a semiconductor wafer (page 3, paragraph 0043). The Woo et al's apparatus rotates a wafer under an optical microscope for observation. While the Applicant does not dispute that a rotating stage is taught by Woo et al for rotating a wafer horizontally under an optical microscope for observation, the Applicant respectfully submits that the key elements of the present invention independent claims 1 and 13 regarding the rotation of wafers is not taught or disclosed by Woo et al. For instance, the recitation in independent claim 1:

" positioning said wafer vertically in said container and adjusting a height of said bearing such that only a predetermined edge portion of the wafer is exposed to said volume of solvent;

rotating said wafer with said edge portion contacting said volume of solvent by turning said rotatable shaft."

Similarly in independent apparatus claim 13:

"a wafer mounting device for supporting a wafer over said container such that only a predetermined edge portion is exposed to said volume of solvent, said wafer mounting device further comprises ..."

These essential elements of the present invention are clearly not taught or disclosed by Woo et al, and furthermore, are not taught or disclosed by Mullee and Gilton et al.

The rejection of claims 2, 10-12 and 19-20 under 35 USC §103(a) based on Mullee, Gilton et al and Woo et al is respectfully traversed. A reconsideration for allowance of these claims is respectfully requested of the Examiner.

Claims 6-7, 9, 14 and 17-18 are rejected under 35 USC §103(a) as being unpatentable over Mullee, Gilton et al, Woo et al and further by general knowledge in the art.

The Applicant has clearly shown that the essential elements of the newly amended independent claims 1 and 13, i.e. positioning a wafer vertically in a container such that only a predetermined edge portion of the wafer is exposed to a volume of solvent, and rotating the wafer with the edge portion contacting the volume of solvent, and a wafer mounting device for supporting a wafer over the container such that only a predetermined edge portion is exposed to a volume of solvent, are clearly not taught or disclosed by the three references and by general knowledge in the art.

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The rejection of claims 6-7, 9, 14 and 17-18 under 35 USC §103(a) based on Mullee, Gilton et al, Woo et al and the general knowledge in the art is respectfully traversed. A reconsideration for allowance of these claims is respectfully requested of the Examiner.

Based on the foregoing, the Applicant respectfully submits that all of the pending claims, i.e. claims 1, 3-18 and 20, are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention is not in a condition for allowance for any other reasons, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,

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